

(4)

- (b) Features at the sole of marine storm beds and turbidites are largely same. Yet, what possible difference in their arrangement do you anticipate? **CO2**

4+1

5. (a) What is the geological significance of herring bone cross-strata, hummocky cross strata, mud drapes on foresets? **CO2**

CO2

- (b) How do you explain climbing of ripples? Describe different kinds of ripple climbs and their geological significance. **CO2**

2+3

6. (a) Does cumulative grain size distribution curve for a sedimentary rock give an idea about textural maturity of the sediment? Give reasons for your answer. **CO1**

- (b) What is the geological significance of textural inversion in clastic sediments? **CO2**

3+2

★ ★ ★

B.Sc. GEOLOGICAL SCIENCE EXAMINATION, 2025

(2nd Year, 1st Semester)

SEDIMENTOLOGY

PAPER : MAJOR-TH/205

Time : 2 Hours

Full Marks : 40

(Use separate Answer-Scripts for each Part)

PART—I (20 Marks)

Answer Question No. 1 and *any two* from the rest :

1. Answer the following : 2×5=10

- (a) How do you account for high matrix content (>50%) in greywacke? **CO1**

- (b) Why does shallow marine environment favour carbonate deposition? **CO3**

- (c) What is the geological significance of stromatolites? **CO1**

- (d) What is litharenite? Briefly discuss their geological significance. **CO1**

- (e) How do you define oligomictic and polymictic conglomerates? **CO2**

(2)

2. (a) What is hardground? How do you recognize hardground in a limestone sequence? **CO2**
- (b) Why is the presence of intraclasts considered most significant in classifying limestone? **CO1**
3+2=5
3. (a) Why is Facies association important to identify sedimentary environment? **CO3**
- (b) What are the major criteria to distinguish between aeolian and fluvial rocks in stratigraphic records? **CO3**
2+3=5
4. (a) What is the geological significance of geopetal structures? **CO1**
- (b) Why is arkose common in rift basins? **CO3**
- (c) "Tidal signature is generally absent within lacustrine deposits." — discuss. **CO3**
2+1+2=5

PART—II (20 Marks)

Answer Question No. 1 and *any three* from the rest : 5×4=20

1. Explain the role of flow dynamics in the formation of bedforms. What is the importance of foreset angles in cross-stratified bedforms? **CO2**
2+3

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[Continued]

(3)

(OR)

Briefly discuss different kinds of bedforms that may arise under unidirectional flow conditions. **CO2**

Describe the transformation of bedforms across the flow regime spectrum from lower flow to upper flow regimes.

CO2

5

2. (a) What is the reason for reverse grading being far more common in aeolian environment than in any other environments? **CO2**
- (b) How do primary sedimentary structures vary between cohesive and non-cohesive sediment gravity flows? **CO2**
3+2
3. Justify *any two* of the following statements : 2½×2=5
- (a) High sphericity in grains does not necessarily imply high roundness. **CO2**
- (b) Laminar flows are generally absent in natural subaqueous environments. **CO2**
- (c) The correlation between trace fossil assemblages and the relative rates of sediment deposition. **CO3**
4. (a) What are the erosional sole features? Describe their respective formative processes. Do they always indicate the sense of palaeocurrent direction? **CO2**

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[Turn Over]